

CLAIMS:

1. A method of enhancing an audio signal, the method comprising the steps of:
 - filtering the audio signal so as to select a frequency range,
 - dividing the audio signal of the selected frequency range into time segments,
and
- 5 - scaling the audio signal in each time segment so as to increase the sound level
of the audio signal in said frequency range,
wherein the time segments are defined by zero crossings of the filtered audio
signal.
- 10 2. The method according to claim 1, wherein each time segment is defined by
two consecutive zero crossings of the filtered audio signal.
3. The method according to claim 1 or 2, wherein the step of scaling the audio
signal involves a distinct scaling factor for each time segment.
- 15 4. The method according to any of the preceding claims, wherein the step of
scaling involves a scaling factor which is constant for each time segment.
5. The method according to any of claims 1-3, wherein the step of scaling
20 involves a scaling factor which varies with the amplitude of the audio signal.
6. The method according to claim 5, wherein the step of scaling involves a non-
linear scaling factor, preferably involving a quadratic or cubic function.
- 25 7. The method according to any of the preceding claims, further comprising the
step of:
 - combining the scaled audio signal of the selected frequency range and the
remained of the audio signal of the previously not selected frequency range.

8. The method according to claim 7, further comprising the step of:
- comparing the amplitude of the combined audio signal with a threshold value,
and
- adjusting the amplitude of the audio signal if the threshold is exceeded.

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9. The method according to claim 8, wherein only the amplitude of the audio signal of the selected frequency range is adjusted.

10. The method according to claim 8 or 9, wherein the steps of comparing the amplitude of the combined audio signal and adjusting the amplitude of the audio signal is carried out per time segment.

11. The method according to any of the preceding claims, wherein the selected frequency range is a bass frequency range.

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12. The method according to any of the preceding claims, comprising the further step of delaying any the signal components of other frequency ranges.

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13. A device (1) for enhancing an audio signal, the device comprising:
- filter means (2) for filtering the audio signal so as to select a frequency range,
- dividing means (3) for dividing the audio signal of the selected frequency range into time segments, and
- scaling means (4) for scaling the audio signal in each time segment so as to increase the sound level of the audio signal in said frequency range,
wherein the time segments are defined by zero crossings of the filtered audio signal.

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14. The device according to claim 13, wherein the dividing means (3) are arranged for defining each time segment by two consecutive zero crossings of the filtered audio signal.

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15. The device according to claim 13 or 14, wherein the scaling means are arranged for using a distinct scaling factor for each time segment.

16. The device according to any of claims 13, 14 or 15, wherein the scaling means are arranged for using a scaling factor which is constant for each time segment.

17. The device according to any of claims 13 to 16, wherein the scaling means are
5 arranged for using a scaling factor which varies with the amplitude of the audio signal.

18. The device according to claim 17, wherein the scaling means use a non-linear scaling factor, preferably involving a quadratic or cubic function.

10 19. The device according to any of claims 13 to 18, further comprising:
combining means (5) for combining the scaled audio signal of the selected frequency range
and the remained of the audio signal of the previously not selected frequency range.

20. The device according to claim 19, further comprising:
15 - comparing means (6) for comparing the amplitude of the combined audio signal with a threshold value, and
- adjusting means (7) for adjusting the amplitude of the audio signal if the threshold is exceeded.

20 21. The device according to claim 20, wherein the adjusting means (7) are arranged for adjusting only the amplitude of the audio signal of the selected frequency range.

22. The device according to claim 20 or 21, wherein the comparing means (6) and
the adjusting means (7) are arranged for comparing the amplitude of the combined audio
25 signal per time segment and adjusting the amplitude of the audio signal per time segment,
respectively.

23. The method according to any of the preceding claims, wherein the selected frequency range is a bass frequency range.

30 24. The device according to any of claims 13-24, further comprising a delay element (8) for delaying the signal components of other frequency ranges.

25. An audio amplifier comprising a device (1) according to any of claims 13-24.

26. An audio system comprising a device (1) according to any of claims 13 – 24.
27. Computer program product comprising code enabling a processor to execute
5 the method of one of the claims 1 to 12.